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**Results:** We found parallel results with IgA IFA, IgA EIA and IgM EIA tests in patient and control groups. IgA test results were paralleled with Sabin-Feldman test results which were 1/1024 and over. We found no IgA positive in control group.

**Conclusion:** These results show that specific IgA marker may be a determining factor a acute infections. IgA antibodies that couldn't pass placental barrier and are synthesised early and have got specificity and sensitivity highly have got importance especially for early diagnosis of congenital toxoplasmosis. Our findings support earlier suggestions.

#### P630 The Role of Specific IgA in the Diagnosis of Toxoplasmosis

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**Objectives:** To search the role of specific IgA for the early diagnosis of toxoplasmosis, toxo IgA antibodies were investigated in the cord blood samples of 159 babies that their mothers had abortus, early birth and birth with anomaly anamnesis.

**Methods:** Sabin-Feldman test which is a reference test in the diagnosis of toxoplasmosis were compared with specific toxo IgA IFA, IgA EIA, IgG, IgM EIA tests. Same tests were performed in 70 cord blood samples from women who have given birth healthy babies and got no abortus, early birth and baby with anomaly.

**Results:** We found parallel results with IgA IFA, IgA EIA and IgM EIA tests in patient and control groups. IgA test results were paralleled with Sabin-Feldman test results which were 1/1024 and over. We found no IgA positive in control group.

**Conclusion:** These results show that specific IgA marker may be a determining factor a acute infections. IgA antibodies that couldn't pass placental barrier and are synthesised early and have got specificity and sensitivity highly have got importance especially for early diagnosis of congenital toxoplasmosis. Our findings support earlier suggestions.

## Miscellaneous infections

#### P631 Characteristics of Invasive Non-b Capsulate *Haemophilus influenzae* Disease in England and Wales 1990–1996

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**Objectives:** To review the clinical and microbiological characteristics of a series of capsulate non-type b *H. influenzae* strains causing invasive disease.

**Methods:** All strains referred to the Haemophilus Reference Unit during the period 1990–1996 were included. Full identification, typing and antibiotic sensitivities were performed; clinical and epidemiological data were analysed from the referral questionnaires supplied.

**Results:** 98 strains (78 *H. influenzae* type f (Hif), 18 Hie, one Hia and one Hic) were received from centres across England and Wales. Most cases occurred in the age groups over 65 years of age and under five years of age. Clinical diagnosis varied with age at presentation:

in the elderly pneumonia and bacteraemia were the commonest diagnoses; in the under fives, meningitis. Predisposing factors were identified in at least one-third of cases. Overall mortality was 10% with most deaths recorded in the elderly and those with predisposing conditions. Mortality and ampicillin resistance were both higher for invasive Hie compared with Hif disease.

**Conclusions:** These findings demonstrate many similarities between the epidemiology of invasive non-type b capsulate *H. influenzae* and Hib disease. The enormous success of Hib vaccine may allow emergence of these non-vaccine strains which exhibit a similar pattern of disease.

#### P632 *Haemophilus influenzae* Invasive Disease in Catalonia, Spain

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**Objectives:** To determine the incidence *H. influenzae* invasive disease (HIID) in Catalonia and to know the clinical and epidemiological characteristics of the detected cases.

**Methods:** Passively reported cases to the Epidemiological Surveillance Service of the Department of Health and Social Security, as well as cases detected by a specific system of active surveillance were analyzed. Any invasive disease in which the agent was isolated from a normally sterile site, was considered as a case. Demographic and clinical variables were collected for each case. The strains' serotype was determined when possible. The incidence rates (IR) were calculated from data of the last Catalonia census (whole population: 6,059,494 inhabitants; population under five years: 280,083 inhabitants).

**Results:** 94 case of HIID were detected during 1996 (IR:  $1.6 \times 10^{-5}$ ); serotype b was found in 33 cases (37% of investigated strains). IR of serotype b HIID in the whole population was  $0.5 \times 10^{-5}$  meanwhile in children under five years was of  $6.4 \times 10^{-5}$  (18 cases detected); the ratio male: female in this age group was 1.6 and the most frequent clinical manifestation was meningitis (11 cases); complications at discharge were observed in two cases and there was only one death (a meningitis case). IR of serotype b HIID in population older than five years was  $0.3 \times 10^{-5}$ ; the ratio male: female was 0.7 and the most frequent clinical manifestation was pneumonia (73%). There were 57 cases caused by strains not belonging to serotype b (only two of them in children under five). The majority of these cases occurred in aged people (58% of them were over 60); the ratio male: female was 1.6 and most cases presented as lower respiratory tract infections (72%) and in patients with underlying conditions (80%).

#### Conclusions:

- (1) 37% of HIID were caused by a serotype b strain. More than a half of them (55%) occurred in children under five and meningitis was the most frequent clinical presentation. In this age group, males predominated over females, whereas females were more frequently in the population older than five.
- (2) Advanced age, male sex and underlying conditions seem to favour lower respiratory infections caused by non b strains.

#### P633 Prevalence of *Haemophilus influenzae* Carriers in Catalan School Population (Spain)

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**Objective:** To determine the prevalence of *Haemophilus influenzae* (*H. influenzae*) carriers in the Catalan school population, as the first part of a study of carrier prevalence in infants and school children.

**Material and Methods:** Pharyngeal swabs were collected and immediately placed in Amies transport medium. The swabs were

streaked onto chocolate polyvitex bacitracin (50 UI/ml) agar plates and incubated for 24–48 hours at 35°C in a 5% CO<sub>2</sub> atmosphere. Colony identification, serotyping and biotyping were performed using standard procedures.

**Results:** The overall prevalence of *H. influenzae* carriers was 26% (318/1227), and the prevalence of *H. influenzae* type b carriers was 0.4% (5/1227). Distribution by age:

Age (years)	n	<i>H. influenzae</i> (CI 95%)	<i>H. influenzae</i> serotype b (CI 95%)
6–7	272	36.0 (30.3–41.7)	0.4 (0–1.1)
10–11	330	29.1 (24.2–34.0)	0.3 (0–0.9)
13–14	306	17.6 (13.4–21.8)	0.6 (0–1.5)
15–17	319	21.9 (17.4–26.4)	0.3 (0–0.9)

**Conclusions:** The overall prevalence of *H. influenzae* carriers in Catalan school children is 26%, while serotype b represents only 0.4%. Both prevalences are lower than those described in other countries.

#### P634 Analysis of Clinical Strains of the *Lactobacillus acidophilus* Group by Pulsed Field Gel Electrophoresis

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**Objectives:** To evaluate the use of pulsed field gel electrophoresis of genomic DNA as a tool for differentiating vaginal isolates of the *Lactobacillus acidophilus* group.

**Methods:** Twenty one *L. acidophilus* strains were chosen to cover a broad range of diversity according to clinical isolation from women with and without bacterial vaginosis (BV), biochemical biotypes, H202-production and in vitro adherence. The restriction endonucleases *Apa* I and *Sma* I were used to digest intact chromosomes of the clinical isolates and a reference strain (*L. acidophilus* ATCC 4356). The fragments were resolved by field inversion gel electrophoresis.

**Results:** Each digest produced 13 to 24 fragments of 20 to 300 kilobases for comparison between strains. The polymorphism was considerable: all the strains including strains of the same biochemical subgroup had different restriction patterns. A high degree of technical reproducibility was found. The *L. acidophilus* isolates in patients with BV did not form a distinct class on the basis of their genomic patterns.

**Conclusions:** The results indicate that pulsed field gel electrophoresis should be an effective tool for differentiating clinical group *L. acidophilus* isolates. The availability of a simple and reliable method for tracking *Lactobacillus* vaginal strains should be of benefit in clinical microbiology laboratory.

#### P635 Application of PCR Ribotyping to *Prevotella intermedia*

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**Objectives:** To evaluate PCR ribotyping as a tool for typing *Prevotella intermedia*, an important periodontal pathogen.

**Materials and Methods:** Strains used were *P. intermedia* ATCC25611, type strain, and 43 *P. intermedia* strains, which were isolated from oral, otolaryngeal, and abdominal infections. Bacterial DNA was extracted by using SDS, proteinase K, and phe-

nol-chloroform. PCR ribotyping was done using a primer set described by Cartwright *et al* (*J Clin Microbiol* 1995), which amplifies the 16–23S rDNA spacer region of *Escherichia coli*. PCR was run for 35 cycles as followings: 95°C, 1 min for denaturation; 53°C, 1 min for annealing; and 74°C, 2 min for extension.

**Results:** Since PCR products under 600 bp in size were least reproducible, we analyzed reproducible bands over 600 bp in size, resulting in 1 to 3 major bands for each strain. A total of 43 *P. intermedia* strains were typed into nine. The type of the ATCC strain was distinct from those of the 43 strains tested.

**Conclusions:** These results indicate that PCR ribotyping is a useful tool for epidemiology of *P. intermedia* that is an important pathogen in various oropharyngeal and otolaryngeal infections.

#### P636 Epidemiological Features and Characterization of *Alloicoccus otitidis* Isolated

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*Alloicoccus otitidis* was isolated from the ear fluid samples of children in 1989, and in 1992 was designated the organism to this new genus and species on the basis of sequence analysis of the 16S rRNA.

Since December 1995 when the first strain of *A. otitidis* was recovered in our laboratory to December 1996, 19 strains of *A. otitidis* from 17 patients, 19 *H. influenzae* from 16 patients, 4 *Streptococcus* beta-hemolytic group A and 10 *S. pneumoniae* from 8 patients, were isolated in acute infections of the middle ear. *A. otitidis* were recovered from 14 children (ranged in age from 2 years to 16 years) and three adults (20, 34 and 67 years respectively). There were 10 females and 7 males. Acute otitis media was evident in 10 of them. There were 11 isolates since autumn to winter, 5 in spring and 1 in summer.

The otic exudates swabs were cultures on Trypticase soy agar with 5% sheep blood, Chocolate agar, Chocolate-Bacitracin agar, MacConkey agar and Sabouraud Chloramfenicol agar. The plates of Chocolate and Chocolate-Bacitracin agar were incubated in 5% CO<sub>2</sub> incubator. Culture on blood agar and Chocolate required >48 hrs of incubation at 37°C and yielded alpha-hemolytic colony of a slow-growing coccus in pure culture in all cases. Gram staining demonstrated gram-positive cocci presents as tetrads. The organism was catalase positive and gave positive biochemical reactions pirrolidonyl arilamidase (PYRA), leucine aminopeptidase (LAP), and B-galactosidase; were variable hippurate hydrolysis and Voges-Proskauer and negative carbohydrate utilization of the API Strep (BioMerieux).

The initial identification process can fail if the cultures are not maintained >48 hrs.

#### P637 Staphylococcal Infections in Adults

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**Objectives:** To evaluate the clinical and laboratory findings and therapeutic features of patients with staphylococcal infection.

**Methods:** Seventy-six patients over 17 years of age with staphylococcal infection were included. The diagnosis was made by the isolation of staphylococci from primary infection site and/or blood cultures. Primary infection site and underlying disease were investigated. Methicillin resistance was determined by disk diffusion test. Antimicrobial therapy was given according to severity of disease and methicillin resistance of strain.

**Results:** *Staphylococcus aureus* was isolated in 53 (70%), and coagulase negative staphylococci (CNS) in 23 (30%) patients. Methicillin

resistance was found to be 8 (15%) among the isolates of *S. aureus* and 12 (52%) among CNS. Fourty-six (61%) of 76 patients had an underlying disease. Eighteen (34%) patients with infection due to *S. aureus* and 18 (78%) patients with infection due to CNS had hospital acquired infection. Fourty-six (61%) of 76 patients were diagnosed as sepsis, 23 soft tissue infection, 4 endocarditis, 2 pneumonia, 1 pleural empyema. Primary site of infection was soft tissue in 9 of patients with *S. aureus* sepsis and intravenous catheter in 17 of patients with coagulase negative staphylococcal sepsis. Vancomycin was given in 22 patients. Three of 76 patients developed different complications and 3 patients recovered with some sequelae. Seven (9%) of 76 patients died.

**Conclusions:** Hospital acquired infections caused by CNS, most commonly associated with intravascular catheters, is a common problem. Methicillin resistant staphylococcal infections have become troublesome nosocomial pathogens.

#### **P638 Comparison of Topical Clindamycin Phosphate and Azelaic Acid for the Treatment of Acne Vulgaris**

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**Objectives:** To compare the microbiological effects of topical clindamycin phosphate and azelaic acid besides their clinical efficiency in the treatment of acne vulgaris.

**Methods:** The drugs were applied to the patients twice daily for 8 weeks. Samples for bacteriological cultures were taken from the hairline, forehead and glabella at the beginning and at the end of 8 weeks. The sensitivity of coagulase-negative staphylococci (CNS) isolated from this samples to azelaic acid and clindamycin phosphate were searched using by microbroth dilution technique. For both groups, the difference between the pre and post treatment acne grades and comparisons of two groups were evaluated by using the Wilcoxon and Spearman statistical tests.

**Results:** Azelaic acid was found more effective in reducing acne grades. 11 CNS strains were found resistant to clindamycin phosphate before treatment. After 8 weeks of therapy with clindamycin phosphate, 18 of 20 CNS strains were resistant this agent. It was detected no difference MIC (minimal inhibitory concentration) values of CNS before and after topical azelaic acid treatment.

**Conclusion:** The better clinical results in the azelaic acid group may be due to no development of resistance to this drug and also the number of the affected pathogenetic ways by these two drugs may be another factor. Clindamycin has only antibacterial and antiinflammatory effects whereas azelaic acid has also an effect on follicular ceratinization.

#### **P639 The Prevalence of Enteric Pathogens in Istanbul, Turkey**

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**Objectives:** The aim of the study was to determine etiologic agents of acute diarrhea in Istanbul, a metropolitan area with a population more than 10 million.

**Methods:** Between 1992–1996, stool specimens of acute diarrheic children and adults admitted to our faculty clinics from different locations of Istanbul were analysed by standard microbiological

methods for enteric pathogens. Outpatients and hospitalized patients with the history of antibiotic use were excluded from the study. Total of 5919 pediatric and adult patients were included in this study. Cryptosporidium, rotavirus and adenovirus were investigated in various pediatric subgroups.

**Results:** Enteric pathogens were isolated in 1402 (23.6%) patients. The frequency of identified strains are as follows: 611 (43.5%) *Shigella* spp., 218 (15.5%) non-typhoid *Salmonella* spp., 10 (0.7%) *Salmonella typhi*, 166 (11.8%) *Aeromonas* spp., 160 (11.4%) *Campylobacter* spp., 141 (10%) EPEC, 18 (1.2%) other enteric bacterial pathogens. 78 (5.5%) parasites (72 *Giardia intestinalis*, 6 *Entamoeba histolytica*) were seen in parasitologic examination in this study. In addition, in a subgroup consisting of children of 0–5 age, the incidence of *Cryptosporidium* was 2% in immunocompetent (No *Cryptosporidium* was detected in control group consisting 107 children without diarrhea). Rotavirus was found in 39 (20.8%) of 187 children and adenovirus was found in 12 (8.8%) of 136 children investigated by ELISA and latex agglutination.

**Conclusions:** *Shigella*, *salmonella*, *campylobacter*, *aeromonas* and EPEC were the most frequently identified enteric bacterial pathogens in both age groups, but rotavirus and adenovirus were also frequent in 0–5 pediatric age group. Therefore, the routine microbiological stool examination should cover all these pathogens.

#### **P640 The Assessment of the Modifications in Tetanus Treatment – Own Observations**

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In Poland tetanus occurs sporadically and almost always affects old, nonimmunised persons. The most cases of tetanus appears in South-east Poland. The better understanding of pathogenesis and clinical course of the tetanus help to establish the appropriate treatment. In slight and moderate forms of the tetanus metronidazol is used instead penicillin and midazolam is preferred in the place of diazepam. Neuromuscular blockade with mechanical ventilation is highly effective for treating severe forms of tetanus. We present own observations about influence of the modifications in the tetanus treatment – the use of metronidazol instead penicillin and midazolam instead diazepam – on survival, and hospitalisation time. The patients were divided into two groups; the first group included patients hospitalised for tetanus in 195, treated with penicillin and diazepam; the second group – patients hospitalised in 1996, treated with metronidazol and midazolam. In 1995 we hospitalised 17 patients with tetanus, 10 were female and 7 male, age range 45 to 88 years (median 70 years). In 1996 we hospitalised for tetanus 21 patients; 13 were female and 8 male, age range from 52 to 87 years (median 67 years). In the group receiving penicillin and diazepam the median hospitalisation time was 52 days, in 14 patients (82%) psychiatric disturbances occurred and 7 patients (41%) died. In the group of patients with tetanus receiving metronidazol and midazolam the median hospitalisation time was 32 days, the psychiatric disturbances were observed in 10 patients (48%), 7 patients (33%) died. However, the evaluated groups were small, it seems that modifications in the tetanus treatment improve survival and shorter hospitalisation.

### P641 Epidemiology of Some Bacterial Invasive Diseases in Children in Slovenia

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**Objectives:** Encapsulated bacteria like *Haemophilus influenzae* (Hi), *Streptococcus pneumoniae* (Stp) and *Neisseria meningitidis* (Nm) are the main causative agents of invasive diseases in children.

For the introduction of regular vaccination, against Hib, we have to know the epidemiology and serotypes of these bacteria which persist in Slovenia.

**Methods:** The invasive strains isolated from sterile body fluids of all three bacteria in children from 0 to 14 years of age have been intentionally collected in Slovenia. The strains were typed with different methods: slide agglutination, coagglutination, dot-blot, ET typing and capsular swelling reaction.

**Results:** The most common types/serogroups are: type b for Hi, serogroup B for Nm and types 14, 19, 23, 6, 4, 18 and 7 for Stp. From the results of ET typing for Nm, we can conclude, that the strains are very heterogeneous with only 4 ETs represented by more than one strain. The invasive diseases are the most common in children from 0 to 1 years of age with Hi as the most frequent causative agent, than Nm and finally Stp. The average incidence of all three bacteria in children from 0–14 years old was 12.7 that means 5.07 for Hi; 4.43 for Stp and 2.90 for Nm. The mortality rate was the same for Hi and Stp (0.18) and half lower for Nm (0.90).

**Conclusions:** So far Hib vaccination is recommended for children with frequent or chronic illness. The decision about introduction of Hib vaccination into the national immunization programme will depend on cost/benefit analyses.

### P642 The Etiology of Bacteremia in Taiwan

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The etiology of 3111 episodes of bacteremia occurring in ten hospitals in 1991 were analyzed. The leading pathogens were *Escherichia coli* (32.8%), *Klebsiella* spp. (13.7%), *Staphylococcus aureus* (8.3%), *Pseudomonas aeruginosa* (6.1%) and *Enterobacter* (4.0%). *Enterobacteriaceae* were more commonly isolated from regional hospitals; *Vibrionaceae* and non-fermentative gram-negative bacilli were more commonly isolated from medical centers. For geographic distribution, *Vibrio* spp., was more commonly isolated in southern Taiwan. Substantial differences were noted in the distribution of organisms in different hospital services. *P. aeruginosa* and *Enterobacter* spp. were more common in haemato-oncology wards, whereas, *Enterococcus* spp., *Enterobacter* spp. and *Bacteroides* spp. were more commonly isolated in surgical services than in total services. *P. aeruginosa*, *Acinetobacter* spp., non-*aeruginosa Pseudomonas* spp. and *Enterobacter* spp. were more common in intensive care units. Urinary tract was the most common focus of infection, followed by hepatobiliary tract. The predominant pathogen of liver abscesses was *klebsiella pneumoniae*. There were higher proportion of *Salmonella*, *Aeromonas* and *Vibrio* bacteremia than in the prior reports. In general, the microbiology of bacteremia in Taiwan was similar to those reported in Europe and North America, but with some important differences, which might be influenced by the patient population, endemic disease pattern, local medical practice and geographic location.

### P643 An Open Randomised Trial of the Use of Antimicrobials in Acute Appendicitis

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**Objectives:** To compare the efficacy of different antimicrobials used for acute appendicitis.

**Methods:** Those consecutive patients admitted to the University Central Hospital of Oulu accepting the participation were randomly allocated to receive no preoperative treatment (P0), metronidazole (P1) or cefuroxime (P2). In the case of perforated appendicitis the patients were further randomly allocated to receive either tobramycin/klindamycin (O1), imipenem/cilastatin (O2) or piperacillin/tazobactam (O3). Altogether 602 patients were included in the study, 85 of them having perforated appendicitis. The efficacy of the treatment was estimated by measuring C-reactive protein daily, the length of the stay at hospital and the frequency of wound infections up to four weeks after the operation.

**Results:** C-reactive protein normalised faster among the patients in groups O2 and O3 than in those in group O1. The frequency of wound infections was significantly lower among those who received preoperative antimicrobials (26.4% P0 vs. 16.1% P1 and 14.8% P2) and also among those with perforated appendicitis in the groups of O2 and O3 (65.6% vs. 20.0% and 28.6%). The length of hospital stay did not differ between the groups.

**Conclusions:** We conclude that preoperative metronidazole or cefuroxime are effective in preventing wound infections. In the case of perforated appendicitis imipenem/cilastatin or piperacillin/tazobactam combinations are effective both in treating the infection and preventing further wound infections.

### Epidemiology of HIV infection

#### P644 Higher HIV Prevalences among Lesser Educated Heterosexual STD Patients in Switzerland

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**Objective:** To identify factors associated with a positive HIV test among heterosexual STD patients.

**Methods:** A voluntary HIV test was offered to all persons diagnosed with an STD at the six policlinics of dermatovenereology which exist in Switzerland (located in the 5 largest cities). Anonymous sociodemographic and behavioural information was collected for each patient.

**Results:** Between July 1990 and June 1995, 2545 heterosexuals were treated for an STD and offered an HIV test. Of the 2095 patients who accepted the HIV test (82.3%), 32 (1.5%) were HIV positive. HIV prevalences ranged from 0.8% in Basel to 3.0% in Lausanne. A multivariate logistic analysis found three significant predictors for HIV infection: STDs which cause genital ulcerations (e.g.: 15.8% HIV prevalence for syphilis), age (0.8% for age 15–29, 2.1% for age 30–44, and 2.4% for age 45+) and the level of education (2.1% for no or basic education, 2.0% for apprenticeship, and 0.2% for higher education).

**Conclusions:** We found that education was a significant predictor for HIV infection among STD patients attending the SNDP. This finding suggests that persons with a higher level of education are bet-